

AS

**Notice of Allowability**

Application No.

10/082,222

Applicant(s)

GIGAS ET AL.

Examiner

Mr. Terry K. Cecil

Art Unit

1723

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6-3-2004.
2. ☒ The allowed claim(s) is/are 1, 5-6, 10-11 and 15 respectively renumbered upon allowance as claims 1-6.
3. ☒ The drawings filed on 2-26-2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                              |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>0604</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                                      |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                     |
|   | 9. <input type="checkbox"/> Other _____.   |

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*Note: Claims 1, 5-6, 10-11 and 15 are allowed and have been respectively renumbered upon allowance as claims 1-6.*

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. Authorization for this examiner's amendment was given in a telephone interview with Leo Jennings on 6-21-2004.

2. The application has been amended as follows:

- Claims 4, 7-9 and 14 have been canceled.
- Claim 1 has been amended as follows:

—1. An impeller for use in a mixing vessel, comprising:

a hub;

an inner blade portion extending directly from the hub and angled in a first direction, and said inner blade portion comprising ~~two planar portions at an angle to each other~~ a planar first portion and a twisted second portion, wherein the angle of attack of the inner blade portion gradually changes along a radial length of the twisted second portion;

an outer blade portion disposed radially outward from the inner blade portion, the outer blade portion ~~and said outer blade portion~~ being twisted to have a gradually changing angle of attack along its radial length less than the angle of attack of said inner blade portion; and

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a connector element connected to both said inner and outer blade portions ~~that provides~~ providing radial spacing between respective inner and outer blade portions,

wherein the inner blade portion has a radial length that is longer than a radial length of the outer blade portion, and wherein the outer blade portion is angled in a second direction opposite to the first direction.—

- Claim 5 has been amended as follows:

—5. An impeller according to claim 1, wherein the connector element is a cylindrical rod.—

- Claim 6 has been amended as follows:

—6. An impeller for use in a mixing vessel, comprising:

a hub;

at least two inner blade portions extending directly radially outward from the hub and angled in a first direction, each ~~and~~ said inner blade portion comprising ~~two planar portions at an angle to each other~~ a planar first portion and a twisted second portion, wherein the angle of attack of the inner blade portion gradually changes along a radial length of the twisted second portion;

at least two outer blade portions disposed radially outward from respective inner blade portions, ~~and~~ each said outer blade portion being twisted to have a gradually changing angle of attack along its radial length less than the angle of attack of each said inner blade portion; and

at least two connector elements, ~~that~~ each connected to a respective inner and outer blade portion to provide radial spacing ~~therebetween respective inner and outer blade portions,~~

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a wherein ~~the~~ each inner blade portion has a radial length that is longer than a radial length of ~~the~~ each outer blade portion, and wherein the outer blade portions ~~is~~ are angled in a second direction opposite to the first direction.—

- Claim 11 has been amended as follows:

—11. An impeller for use in a mixing vessel, comprising:

a hub;

at least two inner blade portions extending directly ~~for~~ from the hub and angled in a first direction, each ~~and~~ said inner blade portion comprising ~~two planar portions at an angle to each other~~ a planar first portion and a twisted second portion, wherein the angle of attack of the inner blade portion gradually changes along a radial length of the twisted second portion;

at least two outer blade portions disposed radially outward from respective inner blade portions, ~~and~~ each said outer blade portion being twisted to have a gradually changing angle of attack along its radial length less than the angle of attack of each said inner blade portion; and

means for providing radial spacing between respective inner and outer blade portions,

wherein ~~the~~ each inner blade portion has a radial length that is longer than a radial length of ~~the~~ each outer blade portion, and wherein the outer blade portions ~~is~~ are angled in a second direction opposite to the first direction.—

- In the specification, page 2, line 8, after “material”, “flow” has been replaced with —flows—; and in paragraph [0008], line 4 thereof, after “first direction”, “an” has been replaced with —and—.

*Reasons for Allowance*

3. The following is an examiner's statement of reasons for allowance:
- The closest cited art—JP 2-273531—fails to anticipate or render obvious, alone or in any proper combination, the inner blade portion that comprises a planar portion and a twisted portion; and the outer blade portion that is twist to provide an angle of attack that is less than the angle of attack of the inner blade portion—within the impellers of the independent claims. The subject matter was taken from the specification (paragraph [0026]) and the drawings (e.g. in figure 4 shows the angles of attack).
  - Dependent claims 4, 7-9 and 14 were canceled since the subject matter thereof is within the independent claims.

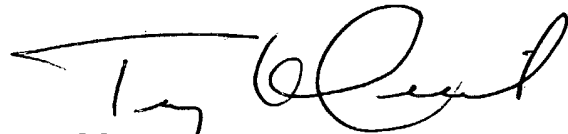
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee.

Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Contact Information:

- Examiner Mr. Terry K. Cecil can be reached at (571) 272-1138 at the Carlisle campus in Alexandria, Virginia for any inquiries concerning this communication or earlier communications from the examiner. Note that the examiner is on the increased flextime schedule but can normally be found in the office during the hours of 8:30a to 4:30p, on at least four days during the week M-F.
- Wanda Walker, the examiner's supervisor, can be reached at (571) 272-1151 if attempts to reach the examiner are unsuccessful.
- The Fax number for this art unit for official faxes is 703-872-9306.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mr. Terry K. Cecil  
Primary Examiner  
Art Unit 1723